

THE CHEMIST

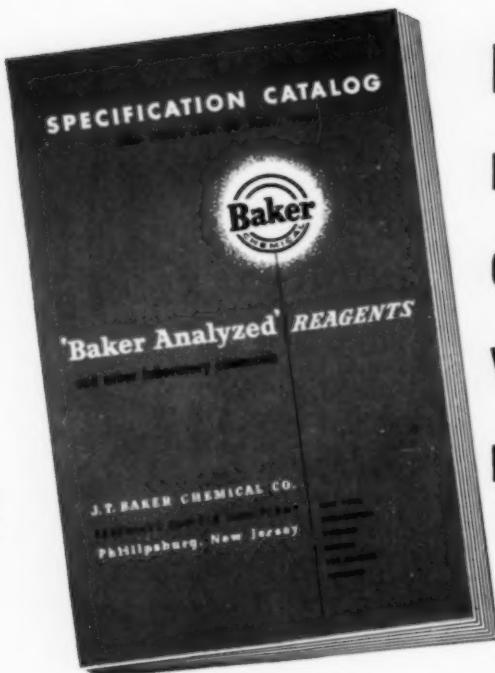
OCTOBER 1951



VOLUME XXVIII No. 10



Dr. N. Howell Furman accepts, from Dr. Raymond E. Kirk, F.A.I.C., the scroll of Greeting to the American Chemical Society. (see page 407.)



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Award of Chicago AIC Scroll to Dr. H. I. Schlesinger.

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Cover Picture

THE AMERICAN INSTITUTE OF CHEMISTS presented a scroll to the American Chemical Society in honor of the Society's Diamond Jubilee.

The presentation was made by Dr. Raymond E. Kirk, F.A.I.C., head of the Department of Chemistry and dean of the Graduate School of Polytechnic Institute of Brooklyn, at the colorful Ceremonial Procession held

at the 71st Regiment Armory, New York, N.Y., on September fifth. There, in full academic dress, foreign and domestic delegates handed Dr. N. Howell Furman, president of the American Chemical Society, greetings from all over the world in recognition of the Society's great contributions to science.

The scroll presented by Dr. Kirk bears the inscription:

Greetings
from the
American Institute of Chemists
to the
American Chemical Society
on the occasion of its
Diamond Jubilee

The members of The American Institute of Chemists are indebted to the American Chemical Society for its seventy-five years of fruitful service, and they offer best wishes and pledge support to the American Chemical Society with confidence that it stands today on the threshold of a new era, wherein unending benefits from the science of chemistry will bring great relief and comfort to the people of the world.

Dr. N. Howell Furman, in a gracious letter of acknowledgement to AIC President Lawrence H. Flett, wrote:

"The beautiful illuminated scroll presented by The American Institute of Chemists to the American Chemical Society on the occasion of our Diamond Jubilee is one of the valued mementos of this event. The celebration has left happy memories in the minds of thousands. In the years to come reexamination of the scrolls and gracious letters from our sister societies, presented at this time, will bring back these recollections.

"I was gratified that the society of which you are president could participate in the celebration of our seventy-fifth birthday. There is partial overlapping in aims and in membership between the ACS and the AIC. The American Chemical Society

values the close relations which it has with other scientific and engineering organizations. This is particularly true in the case of your society.

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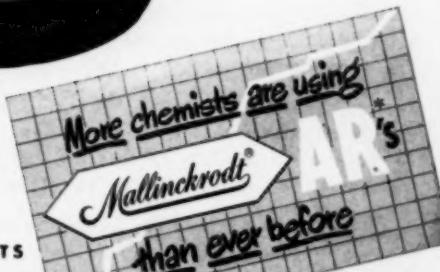
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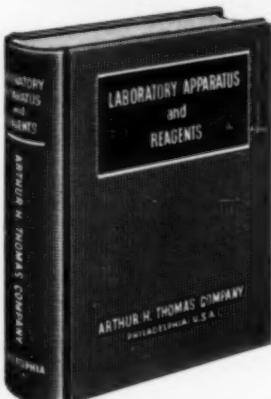
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EDITORIAL

Of Thyself is the Story Told

(*De te fabula narratus*)

Dr. M. L. Crossley, Hon. AIC

Former President, The American Institute of Chemists

THE worth of the chemist, like that of the materials he analyzes, is judged in terms of definite specifications. One must know what these are and to what degree he meets them. This means self-analysis and evaluation. The individual must know himself if he would present his best qualifications for appraisal.

Analysis of one's self is more important than that of gold. In his human contacts the chemist is judged by his personality and character before he gets a chance to register his capacity for rendering service in chemistry. It is highly important that he learn the art of self-analysis and determine to make use of it constantly in keeping the quality of his individuality always up to standard. It is equally important that he appreciate the value of the several factors which determine the standards by which he is measured. By his behavior he makes an indelible impress on the pages of life, and thus is his story told. No factor of personality is more important than one's attitude toward the problems of life. This reflects the individual's reaction to a situation

and indicates his capacity for cooperation. It is determined largely by his temperament, which is the outward manifestation of the physical and mental organization responsible for his manner of thinking, feeling and acting. Temperament is an overtone of personality, giving it the quality by which the person becomes individualized. It can be the determinant of the inspirational forces essential to leadership or it can be the means of establishing the individual as a choleric, egotistic humbug. The result depends largely upon the individual's capacity to control his physical and emotional reactions and to adapt himself to rules and restrictions. Personality first registers through the presence and appearance of the individual. Presence is the manner or bearing of the individual in his human contacts. His physical appearance indicates his appreciation of his own worth.

Of the many factors of character which determine the worth of the individual in society, the following are of great importance:

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lessness in accepting truths, and scrupulous adherence to the principles of justice, fairness and sincerity;

Loyalty: This is the quality of character which assures faithfulness to obligations and marks the individual's appreciation of the important part others play in his success;

Courage: This is the quality of character which enables the individual to encounter difficulties and dangers with firmness and confidence, despising fear or failure;

Ambition, the inward desire to achieve and the will to be outstanding in the endeavor;

Determination, or that quality of will which endows character with oneness of purpose and permits a

steadfast application of one's powers of accomplishment;

Sense of fairness, or the attribute of the mind which enables the individual to see himself in a true light in relation to others and which precludes the existence of the trinity of suspicion, selfishness, and jealousy;

Morality, or the adherence to the highest standards of conduct in accordance with the established principles of social living;

Magnanimity, which is the quality of character which helps one to disdain injustice, meanness and revenge and to act in accordance with greatness of mind and loftiness of spirit;

Prudence: This is the ability to regulate and discipline one's self through the exercise of reason, using discretion in selecting the means to a desired end;

And, finally, a *philosophy of life* in which is summarized the individual's sense of moral responsibility. It shapes his general behavior in society, determining his worth as a citizen as well as his importance in his profession. It determines the degree to which he discharges his obligations with usefulness and reputation.

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The Chemist as a Human Being

Dr. Raymond E. Kirk, F.A.I.C.

*Head, Department of Chemistry, and Dean, Graduate School,
Polytechnic Institute of Brooklyn, New York*

(Acceptance Address on the occasion of the presentation to him of the Honor Scroll of the New York AIC Chapter.)

IT HAS BEEN a magnificent opportunity to have held the Chair of Chemistry at the Polytechnic Institute of Brooklyn for the past twenty years. The Chair was first held by Professor Peter T. Austin, who established chemistry as a professional subject at Brooklyn Poly. His high ideals of professional competency, attested by his magnificent reputation as an analyst and as a teacher, placed the subject of chemistry and the Department of Chemistry on a firm foundation in the middle 1890's when professional chemistry was first coming to the universities of America, and when professional chemists were first coming to be known even in the metropolis of the United States of America.

Professor Austin was succeeded at the turn of the century by Professor Irving W. Fay, my immediate predecessor in the Department of Chemistry. Professor Fay had studied in Germany with the renowned Emil Fischer. He brought to the Polytechnic and to its Department of Chemistry the subject of organic chemistry. This he viewed in the

light of the scholarship of the German universities with its emphasis upon research. Here was added to the ideals of precision supplied by the analytical chemists the structural concepts of classical organic chemistry. Professor Fay was a pioneer in dye-stuff chemistry in America. He wrote one of the earliest books published in America in this field. He was a magnificent expositor. His warm personality endeared him to generations of Poly chemists. He fixed firmly at the Polytechnic its long enduring tradition of friendly and intimate relationships between student chemists and teacher chemists.

Soon Professor John C. Olsen, one of the founders of the profession of chemical engineering, added to the traditions of precision established by Professor Austin. Industrial applications were emphasized by Professor Olsen. Close relationships with industrial organizations were created and fostered. He soon came to be the first head of one of the earliest departments of chemical engineering. Its second head is my good friend and valued colleague, Professor

Donald F. Othmer, F.A.I.C.

In 1919, Professor Benjamin Palmer Caldwell brought to the Department the disciplines and the techniques of physical chemistry. We sometimes forget how recently this division came to be usual in all American Colleges. Professors Smith, Spoerri, and Whitmore extended and added to the contributions of their predecessors and their associates. Graduate programs were founded and expanded.

An outstanding feature of relatively recent time has been the coming to the department of Professor Herman Francis Mark, F.A.I.C., who founded an outstanding school of Polymer Chemistry. Shortly thereafter, there was associated with him Professor I. Fankuchen, who established at the Polytechnic an outstanding laboratory in x-ray diffraction. My present associates on the faculty of the Department, each of them thoroughly trained in science and each intensely enthusiastic about his field, have done much to consolidate and extend the ideals and ideas given to the Department by its founders. If I have contributed to this in any measure, it has been as one who has tried to organize their endeavors and make conditions which have been somewhat more favorable for high achievement on the part of the students and faculty. Whatever of credit or praise there is should be given largely to my predecessors

and my past and present associates in the Department of Chemistry at Poly.

Introduction

One who speaks of the chemist as a human being must resist the temptation to suggest that this is news! All of us know that chemists do not operate as disembodied spirits in an isolated system. Indeed, one is inclined to feel, in the modern world, that the system is rather one which is subjected to rather high pressures and where the molecules are very close together or to put it technically, where the mean free path is very small. Let us then survey the situations that are pertinent with respect to the training of chemists, the functioning of chemists in life, their functioning in organized society, and their functioning in the profession of chemistry.

Training

Much has been said on the subject of training of chemists. Much remains to be said. The quickest way to get a lively argument started in any group of chemists is to raise this topic. Each one of us comes to such a discussion conditioned by his own experiences, his own observations, and his own convictions. Perhaps common agreement can be had on certain essentials. The training of chemists should be carried on in such a manner as to give to the one who is to be entered apprentice in the profession the following general

THE CHEMIST AS A HUMAN BEING

things: A knowledge of science and of mathematics as complete and as broad as is possible within the time limitations of the program, and the ability of the individual would, of course, stand first. We can agree, too, on a knowledge of the arts of communication. No chemist can ever master too well, written and oral exposition. No chemist will ever regret the mastery of several languages. In apposition to these must be placed at once the high desirability for the chemist of complete mastery of techniques. The range is perhaps from matrix algebra to glass blowing!

The training of the chemist should give him an introduction to the method of thought which is by scientists called the scientific method and by engineers called the engineering method. This can be mastered only by an appropriate combination of precept and example: by theoretical understanding and by practical use. In my book, there is no difference between scientific method and the engineering method. They are the same. It is, in my opinion, a mistake to attempt to explain these two different phrases by any differentiation between pure and applied science. Such an attempt would only confuse the issue, because the applied scientists have all learned to use fundamental principles, while the pure scientists soon learn to be very proud of applicational success for

their theoretical ideas. Francis Bacon, who established the scientific method in modern thinking, appraised it this way. "It is desirable to know in order to do."

The formal training of chemists must have both depth and breadth. We are coming to agree that these seemingly contradictory ends are best achieved by a unified program of formal training; a program which carries forward a core of scientific studies and, simultaneously, a core of humanistic studies. Those who try to teach in each of these fields should endeavor to understand the relationships between them for the outcome is to be a chemist; trained broadly and deeply, and still a chemist who is a human being.

Post-collegiate training, otherwise known as Graduate School, is designed, or so it seems to me, to broaden and strengthen the chemist's understanding of science and of man. It is designed to further his ability to use the scientific method. It is also designed to further his ability to work with other human beings within and without his profession.

In Life

In speaking about the chemist in his own personal experiences, I find it very difficult to escape the trite expressions that would indicate only that the speaker, like all good Americans, is highly in favor of home and mother. The chemist's relationships with his own family can contribute

to his professional success. Indeed, if they do not so contribute, there is apt to be great difficulty, both at home and at the laboratory. All of us who are chemists understand how much our wives have contributed to our careers. I sometimes tell my younger associates that no woman should marry a chemist unless she is prepared to become a laboratory widow for more hours than the salesman's wife is a golf widow. Our children face the same situation. Father is always at the laboratory. When he isn't there, he is at scientific meetings. Even dinners at home with his associates and friends soon mix chemistry and conviviality. That chemist is fortunate who can find a side line almost as fascinating as is his science. My own has been history. Here one finds intellectual recreation. Here one can relax in the best possible way, by doing other interesting things or by learning other stimulating facts.

Organized Society

I find it difficult to discuss the hypothetical chemist of my discourse in connection with organized society without becoming somewhat political. I mean politics in its highest and best sense. I mean the attempt by even the lowly chemist to appreciate the problem that has been the problem of the human race since men first began to live together in caves. It is the problem of the security that comes from organized society as against the

restraints on individual acts that is inevitable in such organizations.

This may be pointed up in our American scene by reference to the continuing adjustment that has gone on during the years that the American people have been organized as a republic. It is sometimes forgotten that the Constitution of the United States was written by men who had known both the oppression of the British crown and the semi-anarchy of the Confederate Colonies and of the Continental Congress. A hint is found in a phrase that has lived in the language since the days of the Continental Congress—"Not worth a Continental."

The conflict in the development of the American Republic as a more perfect union of its peoples is well-illustrated as a conflict between the enabling clauses which open the Constitution of the United States of America and the first ten amendments to that Constitution, The Bill of Rights.

"We, the people of the United States, in order to form a more perfect Union, establish justice, insure domestic tranquility, provide for the common defence, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this Constitution for the United States of America."

Against this, let me set my own paraphrase of the articles of the Bill

THE CHEMIST AS A HUMAN BEING

of Rights. These articles guarantee that Congress shall make no laws respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, the freedom of the press, the freedom of assembly or the right of petition. The people are to be secure in their right to keep and bear arms, to be free from having soldiers quartered upon them in time of peace, to be secure against unreasonable searches and seizures and to be prosecuted for crimes only upon the indictment of a Grand Jury. The right of jury trial in public, with previous knowledge of the crime alleged and with the right of counsel and aid in obtaining witnesses in his behalf as well as with confrontation of opposing witnesses shall be secure. Rights not enumerated in the Constitution or delegated by them are reserved to the states or to the people.

I must repeat that here we see, in essence, the conflict of all organized societies. This means that along with limits to the power of Government, there are limits also to the exercise of individual rights. Too often these points have been obscured by the orators of the party called the "outs", when they are the "outs" and by the oratory of the "ins", when they are the "ins." Far too often the reverse arguments come up when the position of the two political parties is reversed with respect to responsibility for the administration of government.

It has been truly said that the concept of free enterprise in business means that if you do not run your business well, it is apt to be taken away from you. But sometimes this is overshadowed by the realization that the process of bankruptcy on a large scale may affect adversely the lives and happiness of thousands of persons in addition to the life and happiness of the one who did not run his business well. Sometimes organized society finds it necessary to intervene and interfere. Sometimes it is highly desirable to grant, by government action, special favors to special groups. Sometimes this means preferential tariffs. Sometimes it means preferential legislation. Sometimes it means rent control. Many times it is abused by pressure groups.

I do not wish to suggest that all chemists should rush out and run for political office. I do not wish to suggest that they should participate at all times and at all levels and at all places in the "great debates" of our times. I most certainly do not mean that professors of chemistry should attempt to teach politics in chemistry classes. I do mean to imply that they should be able, in their own thinking, and in their private conversations, to see the balance that must be kept in the affairs of organized society. I trust that they will not allow themselves to become violent partisans of one or another extreme movement, many of which are today

threatening both organized society, as we know it, and individual freedoms, as we know them.

The Profession of Chemistry

In the practice of his profession, the chemist will soon come to learn the importance of human beings. The man who cleans the laboratory is as much a human being as the director of the laboratory. Cooperation with him, especially when you are new in the laboratory, may be even more important than cooperation with the research director or the department head.

Much has been said about the importance of team work. This can not be overstressed. Modern science progresses by putting carefully organized teams at work on ideas that have come out of the thinking processes of individuals. Neither of these operations can stand alone. In the organization of teams, one often finds tremendous problems in establishing and maintaining the proper relationships between the members of the team. It is even at times a matter of equilibrium.

Some comments have been made about my farm background. At the risk of bewildering my many good friends who are "city slickers," I shall attempt to relate a story from my boyhood days. At the age of twelve, I was sent out with a team and a plow to work by myself. I was somewhat larger than the average twelve-year old and was able, since

the team was steady and trustworthy, to acquire very rapidly this particular farm skill. It might be noted, too, that there are no stones in the rich wind-blown loams of the Nebraska uplands. A year or two later, I was trusted with the "gang plow." This required a minimum of four horses. You will, perhaps, recall that when two horses are hitched to a farm implement, the usual combination of singletrees and doubletrees is adequate. With four horses, there needs to be added a "four-horse evener." I knew how to rig this "hitch" with the appropriate combination of rings and clevises. However, when I started to plow with four horses, I soon discovered that the one thing I did not understand was how to outwit the lazy horse, Old Dan. Old Dan was a black gelding, older than I was. He had learned that it was possible to lag just enough so that the end of his doubletree rested against the four-horse evener. Once this desirable relationship had been established, the horse teamed with Old Dan no longer was pulling one-quarter of the load. He was now pulling nearly one-half of the load. Old Dan was "gold-bricking." However, my father, although he had been trained in the university in Greek and Latin, with just enough "natural philosophy" to understand the principles of levers involved in the four-horse evener, did have a long empirical experience with lazy geldings.

THE CHEMIST AS A HUMAN BEING

When he saw what was going on, he helped me rearrange the four-horse hitch. He then showed me that this rearrangement was one which had set a bear trap for Old Dan. If he lagged too much, the four-horse evener cracked his heels. I am not sure whether top management can carry over these principles to the research laboratories. However, as a chemist who has worked in teams, I have many times had the four-horse evener crack my heels.

The problems of team work in science demand careful considerations. They deal not only with the details of the "hitch" but with subtler aspects, incentive and stimulation.

In the profession of chemistry, our long-term objective is to place our knowledge of the science of changing matter at the service of mankind. In this, we must work both singly and in teams, to the best of our ability.

Program: Chemistry Section of the American Association for the Advancement of Science. Place: Philadelphia, Pa. Dates: December 26th to 30th. Unusually attractive symposia are being arranged as follows:

Dec. 26th, General session for submitted papers, 1 to 5 p.m.
"Reaction Mechanism," by Prof. A. R. Day. 7 to 10 p.m.

Dec. 27th, "Stream Pollution," Dr. George D. Beal, 8:30 a.m. to 5:00 p.m.
"Reaction Mechanism", Prof. A. R. Day. 7 to 10 p.m.
Dec. 28th, "Catalysis", Dr. E. H. Riddle. 8:30 to 11:45 a.m.
"The Chemistry of Colchicine and Related Seven-Membered Carbocyclic Compounds," Dr. Glenn E. Ulliyot, F.A.I.C.
General A.A.S. Session. 7 to 10 p.m.
Dec. 29th, "Forensic Sciences", Prof. Samuel Levinson. 8:30 a.m. to 5 p.m.
Dec. 30th. "Petroleum Technology", Dr. A. G. Oblad. 8:30 a.m. to 5 p.m.
"Problems in Science Communications". Joint session with Section Q. 8:30 a.m. to 5 p.m.

Dr. Ed F. Degering, Buckman Laboratories, Inc., 1256 North McLean Boulevard, Memphis 8, Tennessee, is secretary to whom papers for the general session on December 26th should be sent.

Graduate Student: John Dahler, A.A.I.C., who received a 1951 Student Medal from the Chicago AIC Chapter. He is located at the University of Wichita, Wichita, Kansas.

Dr. Kirk—The Man

Dr. H. S. Rogers

President, Polytechnic Institute of Brooklyn, New York

(Presented at the Honor Scroll Award of the New York AIC Chapter to Dr. Kirk.)

I SHALL give you a picture of the conditions under which Dr. Kirk, the man, grew; of the heritage behind him; of the personal influences in his life; of the interests, powers, and visions he developed.

This is the saga of a young man who grew up on the Plains of the West and who rode on the crest of succeeding waves of education and culture at the high school and college levels. It is a story of a man who came to Cornell, the gateway of learning to our Western State institutions, to earn his doctorate under a man one college generation removed from the chemistry of Germany; who returned to the West to pioneer in educational development; and who then came as a pioneer to New York city and Polytechnic Institute of Brooklyn.

Born on a farm in Hamilton County, seventeen miles from Hastings, Nebraska, Dr. Kirk descended from Scotch-Irish parents. His paternal forebears came from Ulster. In the church his father was a Calvinist, turned Congregationalist; in politics a black Republican (black

in the sense of Civil War days) turned Populist, voting for bimetallism and public ownership of railroads and telegraphs.

His mother was the daughter of a Confederate veteran, who had been confirmed in the Baptist faith on the battlefield, and who was made a Captain at Gettysburg after Pickett's charge.

Dr. Kirk's father was in the class of 1879, at the University of Iowa. He was unable to finish and left in '78 to go to Nebraska and teach school. There he became high school principal, then county superintendent of schools. Later he was elected county supervisor, on the Anti-monopolist ticket. So it was that this Calvinist father with a substantial classical training of the University, settled in Nebraska, where American democracy had its roots at the community level; where church and state and school were the concern of every responsible citizen; where they were integrated together and all formed a part of the beliefs and attitudes of the citizenry.

Thus Dr. Kirk descended from a

DR. KIRK — THE MAN

strong, vigorous, and positive Scotchman, and a mother who was a warm, sympathetic, and evangelical Baptist —a rare combination, indeed. With these parents, he grew up on a farm where his father influenced his political views (he hasn't entirely got over that handicap), where his mother influenced his religious outlook and attitude toward life and people. There it was that he inherited his economic ideals from a good healthy life, stimulated by the hard, cold facts of rugged experience.

As it came time for the son to assume his own obligations, the father proposed that he till, plant, and harvest the field adjacent to the main farm; they would split the profits of the crop. In this way he learned how to work hard and be thrifty. He learned to realize that his profits would be the product of his efforts; he became self-reliant. He built sinews of body and sinews of mind in that fine vigorous home and with the challenge of a task before him. In the schoolroom, he just missed the McGuffey reader, but he had a plentiful supply of complimentary copies at home from the days of his father's term as county supervisor.

For his secondary education, he went to Grand Island Academy, a Baptist boarding school, "under religious influences", as we used to say. There he played football, threw the hammer on the track team, and came under the influence of several im-

pressive teachers. One a teacher of history, found it an easy thing to arouse the interest of young Kirk in fields relating to education and politics. Another a teacher of physics probably did him no harm. This teacher of physics, he tells me, was one of the first teachers of physics in the secondary schools, and as such was not of the best.

Graduating from the Grand Island Academy, he went to Kearney Normal School. In those days, many of the young people of the more responsible families looked forward to service in the schools, as they looked forward to service in politics, business, or agriculture. It was quite a common thing for the young man, and for young women as well, to take on the responsibility for staffing the great number of high schools and academies that were developing at that particular period.

At Kearney, he became a member of the debate team and there also met a great teacher of chemistry, a man by the name of Sutton who was a member of the class of '98 from the University of Nebraska. Sutton persuaded him to leave Kearney and go to the University of Nebraska for training in chemistry. This he did, and there found a place on the University debate team at a time when few scientists and engineers might aspire to such achievement.

When he went to Nebraska, it was the great institution of the Western

plains and he received a sound training. He also met another great teacher, a geologist from Yale, who inspired his amateur and life-long interest in that subject.

At commencement time, the Department of Chemistry received a request from Ames, Iowa, for a graduate teaching fellow. Kirk was recommended and went to Iowa State College as one of the first graduate teaching fellows. There he found a great variety of teaching in chemistry, some good and some poor. With his intense interests, his great ability, and his boundless energies, he soon won for himself a reputation as a good teacher of chemistry. His classes included chemistry for students of agriculture and home economics. In one of these classes he made a particular impression upon a young lady by the name of Beth Sibley, of the family of Minnesota's original governor.

Whether this romance was entirely curricular or extra-curricular, I don't know, but it was an experience the grew out of his teaching which he has long remembered. I asked Mrs. Kirk, if at that time he gave the watered-down version of chemistry usually handed out to home economics students. "Absolutely not", she said. "He was tough and hard, and we got a bona-fide course in chemistry". So you see, it made a great impression on her.

After he received his MS degree

at Iowa State College, a professor who had preceded him from Ames to the University of Minnesota, recommended him for appointment as assistant professor there. He persuaded Beth Sibley to go along with him. There they lived for a while and began to raise a family of two girls. In a few years he decided to come East to Cornell, which was in large measure the gateway of science and of education as it flowed from the European Continent to America and on across the Western Plains. (That was so because the majority of the Western institutions are land-grant colleges. Cornell is, of course, a land-grant college, and when Western institutions were looking for faculty people they naturally came to Ithaca. For that reason you will find a great Cornellian influence all through the Western colleges.) So it was that Kirk bundled his three girls together and came to Ithaca to get his doctor's degree on a Sabbatical leave. Beth came along to keep the little girls out of his hair while he devoted himself to his studies.

At Cornell he worked with Dr. A. W. Browne, one generation removed from Germany through L. W. Dennis. Here again his career ties in with an interesting story in education, the story of how our science was literally transplanted from the Continent and flowed from the East to the West through the medium of the students who imported and im-

DR. KIRK — THE MAN

parted it in the United States.

Kirk's whole career has been influenced by successive waves of expanding educational activity. He rode first on the crest of the wave of the initial great high school enrollments; second, on the crest of the wave of the first great college enrollments; then on the crest of the wave of the first graduate teaching fellows, and finally on the flow of science through scholars returning from Europe to transplant it in American institutions.

Soon he heard that Montana was looking Eastward for the head of a department, one who had taught agriculture and home economics students, and who also was a good chemist, qualified by doctorate training. He accepted the appointment at Montana State College and arrived there just in time to find that the State Gas and Oil Commission had succeeded in obtaining a mandamus from the court that the professor of chemistry should test all samples of gas and oil which the Commission might send him, and that he should do so as an extra-curricular activity. Fortunately, he had an understanding college president and was given student help to care for this state chemists job while he proceeded to develop the department of chemistry.

Perhaps the greatest influences in Montana that come upon him personally, were the influences of a group of men which he joined for discussion purposes—a banker, a law-

yer, and an old teacher of chemistry who had been pioneers in the West like his father and his grandfather. All of these I presume had dialectic abilities somewhat equivalent to his own. He had a great opportunity through them to learn at first hand about the history of that country, about its pioneers and their characteristics. He came to know their spirit, their strength, their visions, and their ambitions, on that lofty plain with its brisk fall mornings and its snow-capped mountains that are so conducive to idealism. All this capped the preparation of a fine young man for a bigger and more challenging work in life.

At that time my predecessor, Dr. Kolbe, was looking for a chemistry department head. He went to Cornell to ask suggestions, from Dr. Browne. Dr. Browne suggested Kirk's name. Kolbe liked Kirk. Browne said to Kirk, "There is need for another graduate department of chemistry in the Metropolitan area and if you go there, I am sure you can build it." So this man who had grown up in the pioneer spirit all his life, with all the pioneer qualities, decided to come from the West to Brooklyn Polytechnic and pioneer in urban education in the biggest borough of the biggest city. I think this is adequate proof that we needn't always look toward the West for frontiers, when we find frontiersmen looking toward Brooklyn for a

pioneering opportunity. It was thus that, in these swings of culture and educational development across the country, he came to the East to undertake his largest professional work. Well-trained, widely experienced in life, with broad interests in politics, history, geology, humanity, with an understanding of people, and a warm feeling of affection for them, with his talents as a debater and a speaker, he came to undertake the development of the chemistry department and the Graduate School at the Polytechnic Institute.

The rest of his life is a matter of his professional achievement primarily, and it lies in the province of the next speaker. Many of these are already known to you. He is now engaged in the monumental work of his encyclopedia with Dr. Othmer as co-editor. He is very much occupied with the continued development of the chemistry department and the Graduate School. Last, but not least, he is making an empirical study of how a grandfather should behave. So, this is the kind of a man—this is the individual whom you seek to honor. We are proud of him. We love to work with him. Some of the folks I know like to debate with him. We all look forward to this great honor for him with a satisfaction and pride equal to his own, I am sure.

Glass Collection: Presented by Dr. Alexander Silverman, Hon. AIC, to The New York State College of Ceramics, at Alfred University, Alfred N.Y. Dr. Silverman, who has just retired as head of the Chemistry Department in the University of Pittsburgh, acquired the collection over a period of forty-nine years. It includes non-replaceable works of art, and is the most representative collection of modern glass from the standpoint of art and technology. Glass from twenty-seven countries is in the collection.

Industrial Hydraulics: A conference to be held November 8th and 9th, in the Sherman Hotel, Chicago, sponsored by the graduate school of Illinois Institute of Technology and the Armour Research Foundation, and with the cooperation of the engineering societies. John G. Duba, instructor in civil engineering at Illinois Institute of Technology, Chicago 16, Ill., is conference secretary.

New Company: Formed by Heyden Chemical Corporation and Shawinigan Chemicals, Ltd., to produce formaldehyde and pentaerythritol, at a plant in Canada. John P. Remensnyder, F.A.I.C., president of Heyden, announced that the site on which the two million-dollar plant will be located will be selected soon.

Dr. Kirk—Character and Accomplishment

Dr. Walter J. Murphy, Hon. AIC

Editor, The American Chemical Society, Washington, D.C.

(Presented on the occasion of the award of the New York Chapter's Honor Scroll to Dr. Kirk.)

TEN YEARS ago, Dr. Kirk was instrumental in my election to the Corporation of the Polytechnic Institute of Brooklyn. This made me one of Kirk's many bosses. In due time he very deservedly was elected a member of the Board of Directors of the American Chemical Society in 1948, which made him one of my bosses. You begin to see the very practical reason for the formation of a Kirk-Murphy Mutual Admiration Society.

At Polytechnic Institute of Brooklyn, my undergraduate years were spent at the feet of Fay, Olson, and Caldwell. Despite crowded quarters and inadequate equipment, these inspiring leaders carried a torch that brightly illuminated the chemical firmament. They brought to the Institute renown out of all proportion to the material resources available to them at the Polytechnic. In our undergraduate years, most of us failed to sense the inspirational character of these three men, but somehow in a subconscious manner, we did realize that a very unique, unusual team had somehow been assembled under one

roof and that we were particularly fortunate in our association with them.

Occasionally as an undergraduate, the thought occurred to me, and to others, that Fay, Olson, and Caldwell would pass on to the great unknown, leaving a great void in the faculty of the Institute that would be difficult to fill. This thought occurred to me more frequently after graduation in the late '20's, when it was perfectly obvious that the reign of the triumvirate would soon end.

The Institute cannot boast of a great and impressive campus. Its one claim to fame was and is the character of the faculty. I was deeply concerned over the future of the Institute until Drs. Kirk and Rogers made their appearance. It then became evident that occasionally lightning does strike twice in the same place. A new generation of inspiring teachers and able administrators were at the helm. Dr. Rogers has outlined for you most ably the personal side of the man whom we honor. It is my prime responsibility to discuss the professional contributions of Ray Kirk. Dr. Rogers has told about Kirk's

formal education at the University of Nebraska, at Iowa State, and at Cornell where Kirk was a Grasselli Fellow in chemistry and received the doctorate in 1927.

Dr. Kirk was an instructor in chemistry at Iowa State from 1917-1920; he was assistant professor of chemistry at the University of Minnesota from 1920-1927, and an associate professor from 1927-1929. From 1929-1931, he was professor of chemistry and head of the department at Montana State College, Bozeman, Mont. In 1931 Dr. Kirk reversed the well-known Horace Greeley advice and came east to accept the professorship of inorganic chemistry and head of the department of chemistry at Polytechnic. Why anyone would desert the midwest, and more particularly the wide open space of the northwest for the confining atmosphere of Brooklyn, with its one tree, has never been satisfactorily explained. Perhaps our good friend looked upon the adventure in the east as a very temporary assignment. Something very compelling must have happened to keep him east. Whatever it was, we graduates of the Polytechnic are eternally grateful.

Since 1944, Dr. Kirk has been dean of the Graduate School while still retaining the headship of the department of chemistry. Dr. Kirk has been both an outstanding scientist and an administrator.

One cannot begin to estimate

quantitatively the many and varied contributions that Professor Kirk has made to the Polytechnic. If I am permitted to cite but one example, it is the tremendous increase in enrollment in the graduate work in chemistry that has occurred under his direction. In 1931, the year he arrived at Polytechnic, thirty-five students were pursuing courses for the Master's degree in chemistry. There was not a single graduate student enrolled for Ph.D. work, and none enrolled in non-degree programs in chemistry. This year there are two-hundred and two studying for Masters in chemistry; one-hundred and fifty for Ph.D.'s, and nearly three-hundred pursuing non-degree programs. These figures would be considerably higher, if the Institute had the necessary facilities.

Among the many, varied and important contributions professional-wise made by Dr. Kirk, was the establishment with Dr. Donald Othmer, F.A.I.C., of the *Encyclopedia of Chemical Technology*. This monumental work which probably will reach twelve or fifteen volumes, fills a need long-recognized by those active in industrial chemistry, chemical engineering, and chemical technology, generally. Professor Kirk is also a member of the Board of Editors of *Inorganic Synthesis*, and has been a steady contributor to the scientific and professional journals.

He has given of his time and

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energy to the professional societies. Occasionally I am asked by young graduates in chemistry and chemical engineering what steps are necessary to achieve professional recognition. Frequently I answer this question by simply stating, "Follow the footsteps of Professor Raymond E. Kirk of the Polytechnic Institute of Brooklyn."

The American Chemical Society has been always near and dear to the heart of Dr. Kirk. It was he, more than any other single individual, who made the ACS bloom in Montana. Transferring to the New York Metropolitan area, Professor Kirk continued his intense interest in the work of the American Chemical Society. He was chairman of the largest section, the New York Section, during the 1946-47 season, and under his able direction the New York Section exhibited tremendous vigor and inaugurated a great many new programs of a scientific and professional nature. He was councilor of the New York Section from 1948 until his election to the Board of Directors in 1949. After fulfilling the role of chairman of the New York Section, he was unwilling to rest on his laurels and he helped to found the Metropolitan-Long Island group of the New York Section and a year ago served as the president.

Dr. Kirk has long been active in the affairs of THE AMERICAN INSTITUTE OF CHEMISTS. In 1936-1937, he was chairman of the New

York Chapter of the INSTITUTE, and more recently he served with distinction as national vice president of the AIC.

Perhaps I should approach any discussion of Dr. Kirk's work as a director of the American Chemical Society with considerable fear and trepidation. Usually one must be discreet when discussing one's boss. However, I feel no need for being circumspect, for Dr. Kirk has the happy faculty of placing everyone immediately at ease. His gracious manner, entirely natural and wholly unaffected, has been a source of inspiration to me and to thousands of others who have experienced the good fortune to know him, to work with him, to play with him. His calm deliberate manner, his ready wit, and his engaging smile have become almost indispensable in the deliberations of a Board of Directors whose meetings extend into the wee hours of the morning and when tempers are short. I am sure these same characteristics are largely responsible for the continued success of the chemistry department and the graduate school of the Polytechnic Institute. It has been a rare honor and a privilege to be associated on many projects with the man we are honoring. It has made no difference whether he or I happen to be the boss. He is a great collaborator and as such, gains immediately the confidence and the

esteem of fellow workers. The traditions laid down by the triumvirate of Fay, Olson, and Caldwell have been carried forward faithfully and well by Professor Raymond E. Kirk.

The Citation to Dr. Kirk

THE 1951 Honor Scroll of the New York Chapter of THE AMERICAN INSTITUTE OF CHEMISTS was presented to Dr. Raymond E. Kirk, F.A.I.C., head of the Department of Chemistry and dean of the Graduate School of Polytechnic Institute of Brooklyn, New York, on May 24, 1951, at the Hotel Commodore, New York, N.Y.

The Honors Dinner was preceded

by a reception to Dr. Kirk, given by Interscience Publishers, New York, N.Y. The speakers for Dr. Kirk at the dinner were Dr. Harry S. Rogers and Dr. Walter J. Murphy. (See page 424). The Honor Scroll was presented to Dr. Kirk by Karl M. Herstein, F.A.I.C., New York Chapter representative to the National AIC Council, and consulting chemist, New York, N.Y.

The Citation to Dr. Kirk reads:

*For his warm heart and cool head
Constantly exercised for the
Betterment of young chemists.*

*For his distinguished career as teacher
And author, which has done much
Toward bringing the profession of
Chemistry to its present maturity.*

Society for Applied Spectroscopy: To meet November 13th at Socony-Vacuum Training Center, 63 Park Row, New York, N.Y., at 8:00 p.m. to hear Dr. J. A. Hipple, National Bureau of Standards, speak on "Mass Spectrometry of Solids."

Awarded: By the Texas Heart Association, affiliate of the National Heart Research Organization, a grant-in-aid of \$7,500 to establish a heart disease research program at the Foundation of Applied Research, on Essar Ranch, Texas.

Communications

Why Not Consult the Library?

To the Editor:

In these days of world tensions we read all too often notices in the press, made by educators, scientists, college presidents, and many others concerning some of the faults in our American educational system.

We know well that perfection is a long way off; there is at any one time in the world's history, and at home, much room for improvement at all levels.

We read, for instance, of a rising trend, on campus and in university classrooms of students'—and even professors'—inabilities to discuss domestic and world problems fearlessly. Along with this, both in the street and on the campus, is the increasing loss of respect and reverence for knowledge "for its own sake," for books, and serious reading. It is an atmosphere growing all around us.

But what tops, in my estimation, this unfortunate trend has lately been revealed, as having occurred in one of our greatest libraries in this country, the J. Crerar Library in Chicago. This sad state of affairs existing among professional people is described in a recent article in the *Midwest Engineer*, of May, 1951, from which I would like to quote. Here is a trend that needs uprooting at once.

"Why do technical men not use libraries more than they do? Librarians often ask themselves this question. Many technical men use the library intensively, but many more use it very little and some do not use it at all. Mr. George F. Hand, materials engineer in the Research and Development Department, Pullman-Standard Car Manufacturing Company, has attempted to answer the question for his company librarian. We are indebted to him for permission to paraphrase his explanation.

"Part of the answer lies in the feeling by technical men that the library is 'sissy' and 'bookish.' The use of the word 'literature' carries with it, unfortunately, the connotation of 'library'. The library is not thought of as a place for practical men to do part of their work.

"For some, the answer is that the boss frowns upon it. One boss said to a librarian when he heard one of his employees had been consulting a library, 'He'll have so much to do soon that he won't have time to spend in the library.' In another instance, an employee expressed appreciation for information received from the library but did not wish his boss to know of it because he was presumed to know his job when he was hired. To use the library was an admission that he did not know everything about his job.

"Another explanation is that the technical man does not feel at home in the library. His professional education has not informed him about the practical values of the library and has not prepared him to make use of its resources. He leaves college believing in the fallacy that books contain only theory and that they have no practical contribution to make to his work. He is not informed of the fact that books today contain far more experimental and practical information than they do theoretical knowledge.

"Other fallacies which keep him away from the library are the belief that keeping up with information in his field is sufficient, that 'practical' work is a quicker source of information than use of library sources, and that only patent attorneys and research men use libraries.

Valid as these explanations may be to the technical man, none of them are acceptable to a librarian of a company library or a large technical library like Crerar. He knows, partly from his own observations, but mostly from statements made to him by technical men who use the library regularly, that the library is the reservoir of accumulated scientific and technical information of every field of science and engineering and that the technical men who stay away from the library cannot possibly keep as fully informed of progress, even in his own field, as the man who has found the library and makes use of it."

Have we as INSTITUTE members sold the public, the layman and our industrialists the value of research, and that this begins by consulting our libraries—as we say: "Going to the literature"? Or shall each "go his way" in this entangled world, repeating to himself the slang expression of the 1920's: "Let George do it."

Certainly the ethics of our profession, be they written or unwritten, call for a thorough reprimand to those in the research field—to the boss who is "afraid" his man is killing time, and to the researcher or timid soul, who ought to know that a thorough perusal of the library, and all it holds for us, is the beginning of all research projects.

The reprimand is to those supporting their profession, lending dignity, integrity and honor to the laboratory and library.

Let us beware that this new phenomenon among chemists and engineers does not become a sign of incipient breakdown of our way of life, which

from Spengler to Toynbee appears in the prediction.

I would like to see responses to this situation in letters to THE CHEMIST from all red-blooded members.

—E. J. Barth, F.A.I.C.

Credit the Chemists

To the Editor:

Here are some excerpts from the letter of a D.V.M. who applied for the position of research director of an ethical pharmaceutical manufacturing firm in the veterinary field.

"One of the first things one should take into consideration is what conditions you are interested in having research completed on, listed in the order of their importance. Could you make a list of the diseases in which you are interested in research on, in the order of their importance?

"For a research set-up, all the personnel needed at the present time is our men for animal disease testing work. From the past experience I have had, I have found that if the director of research will maintain his contact with State colleges and commercial laboratories" (not with consulting laboratories!), "he will find that he has the use of hundreds of chemists who are interested in producing chemicals that can be produced commercially. For this reason, there is very little use for a chemical laboratory. All the chemical work that is required can be assigned to commercial chemists.

"Therefore, the main personnel in starting this research organization would be confined to one veterinarian for parasitic research and one for virus and bacterial work, and one as director and administrator."

Seemingly, this applicant for the position of director of research thinks that the manufacturer (or probably

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his manufacturing chemists and/or salesmen) should draw up a list of diseases for which no remedies exist or which are of such economical importance that new "shot - gun formulas" could be "mixed up and sold profitably." He and two other "medics" (one specializing in parasitology, the other in bacteriology) under him, would start solving the problems by asking the research chemists of the leading manufacturers of medicinal raw materials for suggestions of formulas to be used. (Naturally, this advice would be free of charge!) Then they would have sample batches prepared by their own production chemists, blaming them if anything goes wrong, but taking all the credit, and money, including possible royalties, if the ideas supplied by the "commercial chemists" should work out satisfactorily.

I do not know if the research plans developed by this D.V.M. who wants to become a research director of a veterinary pharmaceutical plant are an exception, or if they are also customary with M.D.'s connected with human pharmaceutical houses. It would be interesting to hear what the experiences of research chemists in other pharmaceutical firms are. In any case, it seems high time that something be done to prevent "medics" from taking not only all the public credit for the introduction of modern therapeutic agents, from vitamins and hormones to sulfonamides and antibiotics—practically all of which were developed by mostly unknown and often underpaid chemists—but now from minimizing the importance of chemists as researchers in pharmaceutical firms and from even trying to push them out of their jobs.

mides and antibiotics—practically all of which were developed by mostly unknown and often underpaid chemists—but now from minimizing the importance of chemists as researchers in pharmaceutical firms and from even trying to push them out of their jobs.

It should be investigated whether "commercial chemists" cannot be asked to cooperate only with chemists, not with "laymen," whatever their titles or degrees may be. After all, M.D.'s and D.V.M.'s are not expected to give professional advice to laymen; why should chemists further undermine their own position in industry? Chemical organizations such as the AIC and the ACS can help much to improve this situation of chemists by making it clear to the public how much these chemists—not "medics", with only a few exceptions—have contributed to the progress of medicine.

—Rudolph Seiden, F.A.I.C.

Not "Good by"

To the Editor:

In no spirit of complaint (too often things like this get by us in *Chemical Abstracts*) I call attention to a printing mistake on page 182, (May 1951 Chemist). Near the middle of the second column "Good by" should read "Good buy."

—E. J. Crane
Editor, *Chemical Abstracts*

Prophecies for the Year 2000

(An abstract of the prophecies made by Dr. James B. Conant, Hon. A.I.C., at the Ceremonial Session of the American Chemical Society's Diamond Jubilee Meeting, September fifth.)

1. There will be a vast increase in the number of persons trained as chemists and chemical engineers. The chemist will be one of the key figures in an urbanized, mechanized society, dependent on the careful control of a multitude of chemical reactions.

2. A way out of the atomic age has been found—neither through the triumph of totalitarianism nor by the advent of world government.

3. Atomic energy did not prove to be an expedient way of lengthening the period in which man taps the sources of energy stored in the earth's crust, and solar energy will be the dominating factor in the production of industrial power.

4. With cheap power, the economical production of fresh water from sea water will be a reality.

5. Greater food production and abundant energy are having enormous effects on the economic and political relations of nations.

6. Over-population will be curbed somewhat by the addition of harmless anti-fertility components to the diet.

7. Fuels will be synthesized from carbon monoxide and hydrogen.

8. The beverage industry will be based on synthetic ethyl alcohol, with carbohydrates no longer used for producing beer or wine or distilled spirits.

9. The so-called extractive industries will be transformed into chemical industries. For example, coal will be gasified underground and cheap crops will be turned into process gas to supply the chemical factories of the nations with raw materials.

10. The threat of atomic war has disappeared. A sober appraisal of the debits and credits of the exploitation of atomic fission had led people to decide the game was not worth the candle.

11. The mood has changed. The rearmament of the free world had done its work. Armies, navies, planes, will still be on hand but the trend is towards less rather than more military . . . An era of peace and prosperity has really begun to dawn. The physicists and engineers are relieved of a terrible responsibility, and the chemists continue to crowd into fields once reserved for others.

In spite of grim years immediately ahead, the second half of the Twentieth Century may yet prove to be a period of gradual disarmament and peace.

Awarded: The Louis Edward Levy Medal to Dr. Albert Charles Walker, F.A.I.C., by the Franklin Institute, Philadelphia, Pa., on the merits of his paper, "Growing Piezoelectric Crystals", published in the December, 1950, issue of the *Journal of the Franklin Institute*. He is associated with the Bell Telephone Laboratories, Murray Hill, N.J.

First Palladium Medal Award: To be made by the Electrochemical Society, Inc., to Dr. Carl Wagner, visiting professor of metallurgy, Massachusetts Institute of Technology, October 12th, at the fall meeting of the society at the Statler Hotel in Detroit.

Buyer: J. A. Cerbone, A.A.I.C., who is now in the Purchasing Department, Chemical Plants Division, Blaw-Knox Construction Company, Pittsburgh, Pa. He was recently with Agava Products, Inc., Jersey City, N.J.

Necrology

Constant A. Benoit

Constant A. Benoit, Sr., founder and President of Permatex Company Inc., died suddenly, May 17, 1951, at the age of sixty-seven. Born in Brooklyn, N. Y., February 20, 1884, he received the B. S. degree from the Polytechnic Institute of Brooklyn in 1905, and the M. S. *cum laude* from that school in 1906.

From 1906 to 1909, he was employed by the Klotz Throwing Company as a research chemist. In 1909 he formed his own company, under his own name, which was incorporated in 1921 as Permatex Company, Inc. He was president and director of research of this organization until the time of his death.

He was a member of Pi Kappa Phi Fraternity, the American Chemical Society, and the Society of Friends of Long Island College of Medicine. He was on the board of Directors of the Brooklyn Chamber of Commerce and a member of the Board of Trustees of the Industrial Home for the Blind in Brooklyn. He was much interested in Boy Scout and Girl Scout work and was life member of the Sheephead Bay Boys' Club. He became a Fellow of THE AMERICAN INSTITUTE OF CHEMISTS in 1944.

He leaves a son, Constant A. Benoit Jr., vice president of Permatex Company, Inc.

Walter A. Bridgeman

Walter Adam Bridgeman, manager of technical service, S. C. Johnson & Son, Inc., Racine, Wisconsin, died December 27, 1950. He was born in Owego, New York, August 10, 1899.

He received the B. Chem. degree from Cornell University in 1913. From 1913 to 1917, he was with the Telling Bell Vernon Company, Cleveland, Ohio, and from 1917 to 1919 with the Teagle Company, Cleveland. He joined the Franklin Research Company, Philadelphia, in 1919 and remained there twenty-one years, advancing to the position of the manager of the Wilbur White Division before he left in 1940. He then became manager of technical service for S.C. Johnson & Sons, Inc.

His specialities were synthetic organics, solvents, waxes, wax emulsions, lacquer solvents, and related fields, in some of which he held a number of patents.

He was a member of the American Chemical Society and the American Society for Testing Materials. He was elected a Fellow of THE AMERICAN INSTITUTE OF CHEMISTS in 1937.

Edwin S. Cavett

Edwin Shelly Cavett, district sales representative of Mutual Chemical Company of America, New York N. Y., died July 26, 1950, at the age of fifty-one. He was born in

Denver, Colorado, in 1899. He received the B. Ch. E. degree from the University of Cincinnati in 1923, and the Ch.E degree in 1927. In addition, he attended Miami University (Ohio) and the Ohio State University.

He was employed by C. C. Smoott & Sons, Inc., as a chemist from 1923 to 1925. He then joined the Tannery Waste Disposal Commission of Pennsylvania to take charge of research and development work on the treatment of tannery wastes. He was technical director in charge of all chemical work with the A. C. Lawrence Leather Company from 1927 to 1933, and production manager for Marden-Wild Corporation from 1933 to 1937. Since 1937 he had been with Mutual Chemical Company of America.

His fields of specialization were leather manufacture, related and allied fields; tannery and industrial waste disposal; the manufacture of leather finishes, sulfonated oils and oil preparations for tanning; the manufacture and use of chromium chemicals for tanning; chrome plating; pigments; textiles; etc.

He was a member of Alpha Chi Sigma, Tau Beta Pi, the American Leather Chemists Association, the American Institute of Chemical Engineers and the Chemical Club of New England. He became a Fellow of THE AMERICAN INSTITUTE OF CHEMISTS in 1948.

James F. Couch

Dr. James Fitton Couch, senior chemist, Eastern Regional Research Laboratory, died August 9, 1951, after a short illness at the Hahnemann Hospital in Philadelphia, Pa.

He was born in Somerville, Mass., in 1888. He received the A. B. degree from Harvard University in 1913, and the A. M. and Ph. D. degrees from American University in 1923 and 1926. He was awarded an honorary Sc.D. degree by the Philadelphia College of Pharmacy and Science in 1948.

In 1917 he joined the U. S. Department of Agriculture, Bureau of Animal Industry, Washington, D. C., where his work for the next twenty three years was devoted to research on the toxic constituents of plants. In 1940, he joined the Eastern Regional Research Laboratories as senior chemist. While there he developed a process for extracting rutin from tobacco. After the value of rutin for the treatment of certain blood vessel diseases was established, the demand for this drug proved greater than the available supply from tobacco. He then worked out a process for the commercial extraction of rutin from green buckwheat plants. This work merited for him the Distinguished Service Award of the U. S. Department of Agriculture in 1947, and the honorary Sc. D. degree from the

NECROLOGY

Philadelphia College of Pharmacy and Science.

This summer Dr. Couch was selected by the Board of City Trusts of Philadelphia to receive the John Scott Award in October, but his death preceded the public announcement of this outstanding award. Previous recognition of his work was given by The Medical Society of the State of Pennsylvania when it named him as co-recipient of awards in 1943 and 1946, and by The American Medical Association with an award of a certificate of merit in 1946.

Among his memberships were the American Chemical Society, The American Association for the Advancement of Science, the Pennsylvania Chemical Society, the Franklin Institute, the Pennsylvania Academy of Sciences, the N. Y. Academy of Sciences, and the Agricultural History Society.

He was a charter member of THE AMERICAN INSTITUTE OF CHEMISTS, which he helped to found in 1923. He was active as an organizer, and as an officer at various times, of the Washington, D. C. Chapter.

He leaves his wife, Mildred Angell; two sons, Joseph and James and a daughter, Mrs. Cecilia Couch Grunwell.

Alvin C. Goetz

Alvin C. Goetz, manager, Technical Service Department, Eagle-Picher Lead Company, died March

21, 1951, after a brief illness, at the age of fifty-nine. He was born in Amsterdam, New York. He obtained the B.S. degree in chemistry from the Pennsylvania State College in 1915.

He was employed as chemist with Kolloggs and Miller, Amsterdam, N.Y., 1915 to 1917. He was with the U.S. Army, Field Artillery from 1917 to 1919. For a short period in 1919 he was with the Bureau of Fisheries investigating improvements in fish oil and meal. He served as manufacturing chemist in the By-Products Department of the Southern Cotton Oil Company from 1919 to 1921; as superintendent of the fatty acid plant of Dowling & Company from 1921 to 1923. In 1923, he joined the Eagle-Picher Sales Company with which he was manager of the Technical Service Department at the time of his death.

His specialties included technology and application of saponifiable oils and fats, pigments, ceramics, rubber, petroleum, and lead cell batteries. He lectured on linseed oil and pigments, and was a contributor to the Department of Agriculture Bulletin.

He was a member of the American Chemical Society, the American Institute of Chemical Engineers, the American Society for Testing Materials, Chemical Market Research Group, and the Federation of Paint and Varnish Production Clubs. He

was elected a Fellow of THE AMERICAN INSTITUTE OF CHEMISTS in 1940.

Charles W. Rivise

Charles W. Rivise, patent attorney, Philadelphia, Pa., died in an airplane crash over Key West on April 24, 1951, at the age of fifty-one. Born in Zhitomir, Russia, he came to the United States at an early age. He received the B.S. degree in chemical engineering from the University of Pennsylvania in 1922; the LL.B. degree from George Washington University in 1926; and the Master of Patent Law from Washington College of Law the same year.

He was a patent examiner with the U.S. Patent Office from 1923 to 1928. In 1928, he started his own practice as a patent attorney with Caesar & Rivise, Philadelphia, where he remained until his death. In World War I, he served in the Army and in World War II, he was an instructor in gas defense.

An authority on patent law, Mr. Rivise wrote many articles and textbooks on the subject. He lectured before many technical groups, including the Practising Law Institute of New York. His specialties were chemical and industrial patents covering the paper, plastics, leather, and other industries.

He was one of the founders of the Friends of the Neighborhood

Centre Scholarship Fund, and had many other philanthropic interests.

Among his many memberships were the Philadelphia Bar Association, Lawyers Guild, the American Chemical Society, Zionist Organization, American Jewish Congress, National Association for the Advancement of Colored People, Philadelphia Organic Chemists Club, American Patent Law Association, New York Patent Law Association, and the Patent Institute of Canada. He was elected a Fellow of THE AMERICAN INSTITUTE OF CHEMISTS in 1932, and was active in the Pennsylvania Chapter. He also served as National AIC Councilor for several years.

He leaves a sister, Mrs. Mary Diamond of Philadelphia, and two brothers B. H. and M. J. Rivise, both of New York, N. Y.

Industrial Photography: Now as important to the engineer as his slide rule, according to Paul A. Barber, manager, Eastman Kodak Company's industrial sales division. He spoke at the American Institute of Chemical Engineers' meeting in Rochester, N.Y., September 16th to 19th. The industrial use of photography has been greatly accelerated by conversion to large-scale defense production, and sixty-one percent of chemical industries are equipped with photographic facilities.



COUNCIL OFFICERS

President, Lawrence H. Flett

President-elect, Lincoln T. Work

Secretary, Lloyd Van Doren

Treasurer, Frederick A. Hessel

COUNCILORS

John R. Bowman, *At-Large*

Harry Burrell, *New Jersey Chapter*

Emmett B. Carmichael,

Alabama Chapter

C. C. Concannon, *At-Large*

M. L. Crossley, *At-Large*

Gustav Egloff, *Chicago Chapter*

Gustav Egloff, *Past President*

G. J. Esselen, *At-Large*

M. J. Hiler, *Ohio Chapter*

L. B. Hitchcock, *At-Large*

H. O. Kauffmann, *Niagara Chapter*

M. J. Kelley, *New York Chapter*

R. H. Kienle, *At-Large*

Harold A. Levey, *Louisiana Chapter*

C. P. Neidig, *At-Large*

Donald Price, *At-Large*

Louis N. Markwood

Washington Chapter

Maurice Siegel, *Baltimore Chapter*

M. Sittenfield, *Pennsylvania Chapter*

Foster D. Snell, *Past President*

Raymond Stevens

New England Chapter

Manuel Tubis, *Los Angeles Chapter*

Florence E. Wall, *At-Large*

Report of Delegate to American Board of Clinical Chemists

Dr. J. W. E. Harrisson, F.A.I.C.

Early in 1949, your Chairman appointed a delegate to meet with delegates from the American Chemical Society and the American Society of Biologic Chemists at some place convenient to them, and there discuss the advisability of forming an organization to "certify" clinical chemists or those engaged in closely allied fields of chemistry.

The delegates met in Detroit during April, 1949, and being unanimous in their decision that a "Certifying Board" was needed and having power to act, elected Dr. Otto A. Bessey and Dr. Jos. W. E.

Harrison, temporary Chairman and Secretary, respectively.

The officers promptly sought the financial support of the American Chemical Society, American Society of Biologic Chemists and THE AMERICAN INSTITUTE OF CHEMISTS, and all of these organizations willingly responded. With the funds made available, counsel was employed and the final organization proceeded. An initial meeting to sign the Charter application and draft the By-Laws was held in Atlantic City, during April, 1950. The

Charter was granted in the State of Delaware, August, 1950.

The original delegates compose the present membership of the Board and from these the officers have been selected. The officers and members are at present:

Otto A. Bessey, Ph.D., *President*
 Donald D. Van Slyke, Ph.D.,
Vice President
 Jos. W. E. Harrison, Sc.D.,
Secretary-Treasurer

Other Directors

Herbert H. Bunzell, Ph.D.
 Oliver H. Gaebler, Ph.D.
 J. Murray Luck, Ph.D.
 Clarence W. Muehlberger, Ph.D.
 Arnold E. Osterberg, Ph.D.
 Michael Somogyi, Ph.D.

Provision has been made for the continuation of the Board of a rotating membership, selected by ballot from nominees delegated by the original sponsoring societies and from other similar and interested groups.

The Board will hold its next annual meeting in Chicago on May 25th and 26th. At that time consideration will be given to applications for certification that have been filed with the Board. It is expected that the Board will proceed rapidly in the review of these applications.

Since January 1st, three hundred requests have been received for certification papers. So far as can be determined from the data available the applicants may be classified as follows:

Occupational Connection

Private Organizations	53%
Hospital	24%
University, College or Governmental	23%

Plant Maintenance Conference: To be held at the Plant Maintenance Show, Convention Hall, Philadelphia, January 14-17th. Thirty-four sessions on maintenance are planned and one-hundred executives will give talks. Registration cards may be obtained from Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N.Y.

National Council Meetings

Meetings of the AIC National Council will be held at The Chemists' Club, 52 E. 41st Street, New York, N.Y., at 6:00 p.m., on the following dates:

October 10, 1951
 November 14, 1951
 January 9, 1952
 April 9, 1952

Speaker: Dr. Gustav Egloff, Hon. AIC, of Universal Oil Products Company, Chicago, Illinois, September 28th, before the Younger Men's Group, Union League Club, Chicago, on "Living on Petroleum;" October first, before the St. Louis Section, American Chemical Society, on "Modern Processes in the Oil Industry;" October 15th, as part of Oil Progress Week, sponsored by the Oil Industry Information Committee, Indianapolis, Indiana, on "The Modern Oil Industry," and on October 16th, also in connection with Oil Progress Week, a large Saginaw Valley Oil Progress meeting, at Frankenmuth, Michigan, on the oil industry.

Elected: Milford H. Corbin, F.A.I.C., as president of the New York Paint, Varnish & Lacquer Association. He is president of Standard Varnish Works, Staten Island 3, New York.

A.I.C Activities

C. P. Neidig, F.A.I.C.

New York Chapter

ANNUAL REPORT 1950-51

The New York Chapter again nears the end of a successful year, marked by six Chapter meetings. The final meeting to be held on May 24, 1951, continues the custom of recent years in being the Annual Honors Meeting at which the New York Chapter Honor Scroll is awarded—this year to Dr. Raymond E. Kirk, head of the Department of Chemistry, Polytechnic Institute of Brooklyn. At this same meeting, Student Medals will be awarded to the winners from the principal metropolitan colleges, the elections for the coming year will be held, and any other business will be transacted.

All meetings but one, wherein there was a conflict, will have been held at the Hotel Commodore. On October 5, 1950, there was a forum discussion on "The Proposed A.I.C. Employment Agency", the principal speakers being Dr. Walter J. Baeza and Dr. Charles J. Marsel. Virtually unanimous support of the proposed agency was given by a poll of those present. On November 10, 1950, at the Downtown Athletic Club, Dr. William L. Lawrence, science editor of *The New York Times*, addressed the dinner meeting on "The Atomic Bomb" and he was preceded by Dr. Kenneth S. Pitzer, research director of the Atomic Energy Commission, whose subject was "Chemistry and Physics Starting One Milli-second after an Atomic Explosion". The December 5, 1950, panel discussion on "Your First Job" drew nearly 150 students to hear Messrs. W. Alex Jordan, Editor of *Chemical Industries*, Martin Buck of Shell Chemical Company, E. E. Fogle of Carbide & Carbon Chemical Company, and Dr. Patrick Moore of American Cyanamid Company.

A banquet on January 25, 1951, honored Dr. Jerome Alexander on the occasion of presenting to him the INSTITUTE's newly-styled Honorary Membership Certificate. Mr. Francis M. Turner of Reinhold Publishing Corporation was the speaker for the honor guest, and presentation was

made by A.I.C. President Lawrence H. Flett. On March 29, 1951, a discussion meeting on "Selective Service and Scientific Personnel" featured as speakers, Col. Candler Cobb, New York City Director of Selective Service, Col. C. E. Davies of the Engineering Manpower Commission, and Dr. L. H. Farinholt of Columbia University. The average attendance at the first five meetings was ninety-five.

The Chapter Council has continued the practice of regular monthly meetings at The Chemists' Club. Chapter membership continues its slow upward rise, and now approximates 650. Dr. Charles J. Marsel, chairman of the Membership and Student Relations Committees, has initiated important efforts which are already bearing fruit. Drs. Robert Ginell and Albert F. Guiteras have once more performed very commendable jobs as chairmen of the Program and the Arrangements Committees, respectively. Mr. Paul B. Slawter, Jr. became publicity chairman at mid-year and has done much to improve this important activity. Dr. Donald F. Othmer has headed a special committee to study the awarding of Student Medals, and has submitted a plan for increasing the number of eligible colleges and for including winners from accredited chemical engineering departments.

The Employment Agency Committee, with Walter J. Baeza as chairman, had been very active during the summer months and met with the special legal committee of the National Council. In the September, 1950, issue of *THE CHEMIST*, an announcement of the project and an appeal for funds were made to the whole INSTITUTE membership. Copies of a brochure detailing the plans for the proposed agency were prepared, the very successful discussion meeting of October 5th was held, and a great many key people throughout the INSTITUTE were contacted. Yet financial support from the great mass of membership was not forthcoming. Nevertheless, a number of large pledges brought the total to \$5000.00, a quarter of the amount deemed necessary. Similar difficulty was encountered in getting outstanding men to serve on a board of governors for the proposed agency. Undoubtedly Korea, the expanded economy, and the pressure of defense assignments on key men have all contributed to delay. Work is still continuing, so as

to be ready when the propitious time comes to actually inaugurate the proposed employment agency for chemists.

The finances of the Chapter continue to be too close to the borderline for an expanding program. Strong efforts to secure advertising to offset the large meeting announcement costs have been only partly successful. At the Annual Meeting the Chapter will vote on a Council-proposed amendment to charge \$2.00 per year Chapter dues.

The Nominating Committee of Chairman Raymond E. Kirk, Lawrence H. Flett and Donald B. Keyes proposed the following unopposed slate:

Chairman, Dr. Henry B. Hass

Vice-Chairman, Dr. Karl M. Herstein

Secretary-Treasurer, Mr. Guy A. Kirton

National Representative,

| Dr. Maurice J. Kelley

Councilors (3-year terms)

| Dr. Albert F. Guiteras

| Dr. John Happel

Councilor (2-year term)

| Dr. Kenneth W. Newman

I wish to take this opportunity to thank the Chapter for the honor of being its Chairman, and all the Officers, Councilors and Committee Chairmen for their splendid cooperation. In extending best wishes to the new officers, I am sure they will continue the upward trend which has prevailed in recent years.

*—Dr. Maurice J. Kelley,
Chairman*

New Jersey Chapter

ANNUAL REPORT 1950-51

The following officers and councilors of the New Jersey AIC Chapter were elected for the 1950-51 fiscal year:

Chairman, Chester A. Amick
Chairman-elect, P. J. Gaynor
Secretary, H. W. Mackinney
Treasurer, E. R. Hanson
Chapter Representative, Harry Burrell

Councilors, T. R. Aalto
** C. L. Brown*
** A. J. Frey*
M. H. Gwynn
C. S. Sherman

Due to an increase in the membership

of the Chapter, eight councilors will be elected in 1951.

Four meetings are on the program for the 1950-51 season.

Dr. Johnson O'Connor, founder and director of the Johnson O'Connor Research Foundation, spoke on "Aptitude Studies as Applied to Chemists and Chemical Engineers" at the first meeting on October 10, 1950. This meeting was open to the public, and special invitation was extended to members of the AIC, the ACS, and other chemical engineering societies, chemistry teachers, chemistry department heads, and vocational guidance advisers in high schools and colleges: Corporation employment and employee-relations managers, and to other persons interested in making sure that all persons in the chemical field are making maximum use of their inherent aptitudes or talents. Special invitation was also extended to college and high school students.

Dr. O'Connor discussed his experiences of more than twenty-five years in trying to learn which jobs require what inborn abilities, then determining means of measuring these talents, and finally assembling these traits into work patterns which would help people to understand themselves and what they are best fitted for. Many persons in different kinds of work were measured scientifically to determine what traits were characteristic of those outstanding in their field of work and eventually a number of individual traits were isolated and it was found that certain combinations of these traits were characteristically present or absent in the large majority of persons who had become outstandingly successful in certain careers.

The primary aptitude for an engineer is structural visualization—ability to think in three dimensions. For work involving specialized knowledge, an engineer should be extremely subjective, but for executive and some administrative work, he should be objective. Dr. O'Connor discussed the difficult problems which arise from these conflicting requirements, and how best to solve them. He also discussed other situations where discontent and frustration of an employee was due to lack of use of some aptitude he *had* or due to the requirement of an aptitude he did not *have*.

AIC ACTIVITIES

The aptitude pattern of a typical research chemist is extremely subjective personality, high structural visualization, inductive and analytical reasoning, good observation and good vocabulary, both general and scientific, and, for laboratory work, also tweezers dexterity. *The extremely subjective person with high inductive reasoning and high structural visualization is the problem solver.*

The second meeting was held at the Esso Research Center in Linden on November 30, 1950. Dr. R. M. Burns, chemical director of the Bell Telephone Laboratories spoke on "Chemists in the Electrical Industry". Dr. Burns outlined the importance of the widely diversified fields of chemistry which are intimately involved in the electrical industry. These included about ten of the 31 groups classified in "Chemical Abstracts".

The third meeting was held on March 29, 1951, at the Public Service Auditorium in Newark. This meeting was a panel discussion on "The Needs of New Jersey State Teachers' Colleges". The speakers were Assemblywoman Grace M. Freeman, who is chairman of the Education Committee in the House of Assembly of New Jersey; Senator Kenneth C. Hand, who is chairman of the Education Committee in the New Jersey Senate; Mr. Carlton Tillinghast, Executive Director of the New Jersey Taxpayers' Association, and Dr. John Bosshart, who is New Jersey's Commissioner of Education.

Although New Jersey is the foremost state in the Union in output of chemical manufacturing, the public schools to which we chemists, as parents, send our children are crowded and teacher-loads are high. Due to the increased number of primary students and a continuing increase over the normal for the next few years, it is imperative that New Jersey not only add to the number of rooms for teaching but also employ numbers of new teachers. The New Jersey Teacher Colleges have insufficient facilities to meet the requirements for this increased load in the public schools, and consequently Miss Freeman has submitted a bill in the Assembly which would authorize the submission to referendum by the voters of New Jersey, the question of appropriating 15 million dollars for improvement in the Teacher Colleges.

The plans for the annual meeting to be

held in May have not been completed.

A nominating committee consisting of Dr. W. J. Sparks, Dr. V. N. Morris, and Mr. P. J. Gaylor have selected a slate to be submitted to the membership for election of the officers for the coming year.

A committee on new members has begun to function. Twenty-eight new members have been obtained and others are "considering". The membership committee follows:

Dr. T. R. Aalto
Dr. E. C. Botti
Dr. C. L. Brown
Mr. Harry Burrell
Mr. Lawrence H. Flett
Dr. Albert J. Frey
Dr. S. G. Gallo
Dr. I. D. Garard
Mr. P. J. Gaylor
Dr. P. M. Giesy
Mr. M. H. Gwynn
Dr. E. R. Hanson
Dr. Frederick A. Hessel
Mr. John D. Hetchler
Dr. H. W. MacKinney
Dr. Henry C. Marks
Mr. Louis A. Melsheimer
Dr. V. N. Morris
Dr. Oliver S. Plantinga
Dr. T. F. Scholz
Mr. O. E. Shefield
Dr. C. S. Sherman
Dr. W. A. Stanton
Mr. P. J. Wood
Mr. C. A. Amick

—C. A. Amick, *Chairman*

Niagara Chapter

ANNUAL REPORT 1950-51

The Niagara Chapter has carried on its usual meetings which have been held as follows:

October 4, 1950—We were privileged to view a film, "Atomic Physics" which dealt almost entirely with the work done by the British atomic scientists. A very interesting commentary to the film was delivered by our secretary, Dr. Robert H. Schuler, F.A.I.C., who worked on atomic energy projects after having received the doctorate from Notre Dame and who is now teaching at Canisius College in Buffalo, N.Y.

Dec. 6, 1950—We were privileged to hear Mr. Fred Koethen, F.A.I.C. consulting industrial chemist of the Niagara

Frontier, speak on the "History of Chemical Industry in Western New York." Mr. Koethen has been a long time member of the Niagara Chapter and a working chemist in the Niagara area since 1911, with a keen interest in the history of development of the Frontier.

On Feb. 21st, 1951—Dr. Ray Hess, F.A.I.C., head of Operating Improvements and Pollution Research, National Aniline Division, spoke on "Pollution Problems in general and with particular reference to the problems in Western New York." He is very actively associated with the various water and water pollution committees in New York State and these activities necessarily, in some cases, take on national scope.

The Student Medal Awards were awarded to:

Arthur F. Roaldi, Canisius College
Joseph M. Cahill, Niagara University
Joseph Cardone, University of Buffalo

These awards were made in recognition of leadership, excellence in scholarship and character, for the purpose of stimulating interest in the science of chemistry and the profession of chemist, in accordance with the constitution of the INSTITUTE. Dr. Emil R. Riegel, F.A.I.C. professor of chemistry, University of Buffalo, made the presentations and briefly described what the college had tried to give the graduating student in preparation for his industrial or professional work, followed by short talks given by Mr. C. F. Smith, Jr., F.A.I.C., of the U.S. Rubber Reclaiming Company, who spoke on the economic factors influencing the young chemist. Dr. Ledra Lawton, F.A.I.C., of the Harrison Radiator Division, as an individual representing management and the executive branch of industry, described what management expects from the young graduate chemist.

Any Chapter which has been host to a National Meeting, knows well how much work is involved in making the necessary arrangements. Our Chapter has been working steadily on the National Meeting since the middle of 1950 and it is to be hoped that the untiring efforts of the Committee men will be evidenced by the National Meeting which is to be held in May at the General Brock, Niagara Falls, Ontario.

—Bert Wetherbee,
Chairman

Ohio Chapter

Chairman, Dr. George F. Rugar

Chairman-elect Dr. Otis D. Cole

Secretary-Treasurer

Harold M. Olson

Representative to National Council,

Dr. Malvern J. Hiler

The Ohio Chapter will participate in the third Annual Dinner of the Chemical Professions in Cleveland, with the local sections of the American Institute of Chemical Engineers, the American Chemical Society, and the Electrochemical Society, on Thursday, November 8th at the Hotel Hollenden, Cleveland. Dr. Paul D. V. Manning, F.A.I.C., vice president in charge of research, International Minerals & Chemical Corporation, Chicago, will speak.

New Chapter Chairman: Dr. A. W. Fisher, Jr., Arthur D. Little, Inc., Memorial Drive, Cambridge, Mass., who was elected chairman of the New England Chapter of THE AMERICAN INSTITUTE OF CHEMISTS to succeed John J. Healy, Jr., who was transferred from the Merrimac Division of Monsanto Chemical Company, Boston, Mass., to the Monsanto Chemical Company, St. Louis 4, Missouri.

To Venezuela: Dr. Gustav Egloff, Hon. AIC, who attended the National Petroleum Convention, held by the Government of Venezuela, at Caracas, as its guest, the latter part of September.

Opportunities

Doris Eager, M.A.I.C.

Positions Available

Lubricating Grease Expert. Medium size chemical company desires top notch man with vision and drive to plan and carry through a research program designed to increase sales of grease bases and additives, and expand company operations in the lubricant field. Must be abreast of new developments. High salary and opportunity for right man. Metropolitan N.Y. Box 101, THE CHEMIST.

Chemist: Research and analytical experience in detergent field. Extrovert, versatile, capable of assuming charge of laboratory. Salary up to \$10,000. N.Y. state. Box 103, THE CHEMIST.

Group Leader: Experienced in mercaptans. Ph.D. desirable. N.Y. city. Box 105, THE CHEMIST.

Jr. Chemists & Chemical Engineers: B.S. from accredited schools, good grades, personable, able to work with technical and plant personnel, some travel. Salary \$60. Metropolitan N.Y. Box 107, THE CHEMIST.

Biochemist: Nutrition, toxicology, pharmacology, young. N.J. Box 109, THE CHEMIST.

Biochemist: Good analytical technique, enzyme work, young. Metropolitan N.Y. Box 111, THE CHEMIST.

Organic: B.S. or M.S. with experience in carbohydrate and protein chemistry, young. Metropolitan N.Y. Box 113, THE CHEMIST.

Chemist: Young lady, B.S. in chemistry, food background, work in test kitchen. N.J. Box 115, THE CHEMIST.

Planned: By Eli Lilly & Company, a new antibiotics manufacturing plant near Lafayette, Indiana.

Chemists Available

Liaison Chemist. F.A.I.C. Liaison between technical departments and sales department in chemical or allied industry. Can write effective sales literature and prepare exhibits for salesmen's use. Interested in Chicago area only. Box 102, THE CHEMIST.

Patent Attorney. Ph.D. Columbia University, 1937, registered before U.S. Patent Office, over 5 years patent experience, plus 5 years industrial experience. Age 43 married and draft-exempt. Fields of special knowledge pulp and paper, petroleum, plastics, and synthetic paints. Available part-time. Box 104, THE CHEMIST.

Assistant Chemist (woman) B.S. and additional study. Experience: Clinical methods; yeast and bread control. Box 106, THE CHEMIST.

Complaint: By the National Production Authority, U.S. Department of Commerce, that chemical companies frequently fail to give complete information in filling CMP 4-C applications for controlled materials to be used in plant expansions. When in doubt, companies may obtain information from the Facilities Branch, NPA Chemical Division, Washington 25, D.C. or from Department of Commerce field offices.

Plans for Expansion: Completed by Heyden Chemical Corporation, to construct new laboratory units at its Garfield, N.J. plant, to increase production of pentaerythritol derivatives.

For Your Library

Petroleum and Its Products

Priestly Lecture No. 24 (1950) by William J. Sweeney, F.A.I.C. Phi Lambda Upsilon, State College, Pennsylvania. 158 pp. 9½" x 11¼". \$2.05.

This is a most comprehensive summary of data on petroleum, occurrence and production, composition, refining, chemical products and utilization. Extensive tables and diagrams in color accompany a clearly written text, based on a great wealth of experimental work.

—Dr. John A. Steffens, F.A.I.C.

Acetylene Homologs and Derivatives

By Prof. Pierre Piganiol. Translated from the second revised edition by Dr. Frederick A. Hessel, F.A.I.C. and John B. Rust, F.A.I.C. Mapleton House VII + 356 pp. \$10.00.

The importance of acetylene as a raw material in chemical process has been increasing constantly since the first news came to this country of the Reppe chemistry. For the application of the special reactions of Reppe, it is necessary that there be a complete understanding of the older reactions of acetylene or more generally of compounds with a triple bond. Prof. Piganiol has, in his monograph, compiled the available information in excellent form. The book is divided into seven parts, the first of which refers to the history of acetylene. Part II is concerned with the preparation, properties, and stability of acetylene and its homologs. Part III has an extended discussion of addition reactions at the triple bond. Part IV discusses reactions which do not affect the triple bond. Part V has a discussion of laboratory technique and monographs. Part VI and VII have discussions of acetylene compounds in industry and in nature. There is an index of eleven pages and each chapter is well-documented with references to the literature. The translation by Dr. Hessel and Mr. Rust is in fluent English.

With this excellent content, it is unfortunate that the format of the book leaves something to be desired. The introductory pages are printed from set

type. The bulk of the book, however, is reproduced from typewritten pages which have been reduced from the standard 8½" x 11" to about 4½" x 6½". This reduction does not contribute to the legibility. Nevertheless, the book is essential for any worker in the field of triple bond chemistry.

—Karl M. Herstein, F.A.I.C.

The Properties of Asphaltic Bitumen

J. Ph. Pfeiffer, Editor. Elsevier Publishing Co., 285 pp. 7" x 10½". \$5.00

Asphaltic bitumen is discussed in this volume by Dutch experts as a colloidal system; dispersion of high molecular weight compounds as micelles in an intermicellar phase of lower molecular weight compounds.

The colloidal state determines the rheological properties and permits diversion of asphalts into three main types, (1) a viscous, non-colloidal sol; (2) a sol, and (3) a gel. The physical, chemical and practical properties of asphalt and its emulsions from most varied sources are systematized.

Routine analysis is considered. The discussion of the controversial ductility test is pertinent because of its value in the selection of asphalt for tiles and for the modern road material, asphaltic concrete.

—Raymond H. Hobart

Elsevier's Encyclopedia of Organic Chemistry

Volume 12B, part IV. Oxo Compounds—except Quinones in: Series III: Carboisocyclic Condensed Compounds, Pages 2189-2716; 16 x 25.5 cm. Edited by Dr. F. Radt, Elsevier Publishing Co., Inc. Price: (a) for subscribers to complete work, \$37.50. (b) for subscribers to Series III only, \$43.75. (c) for single volume, \$50.00.

Great credit is due to Dr. Radt and his staff for maintaining the excellence of this series in spite of the accidents and interruptions of the late world war. This present volume, on naphthalene compounds containing Oxo-groups, except Quinones, is a further proof that this Encyclopedia will undoubtedly be found on the shelves of every chemical library worthy of the name, and that it will be

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indispensable to organic chemists.

The general literature on the subject is covered through 1944, that concerning the structure of compounds up to the beginning of 1950.

Besides the subject and formula indices there are summaries of compounds with a similar structure or functional character which should prove very valuable.

—Dr. Frederick A. Hessel, F.A.I.C.

Scientific Russian

A Textbook for Classes and Self-Study.
By James W. Perry, F.A.I.C. Interscience
Publishers. 846 pp. \$7.50.

This is an excellent book. It is not simply an enlarged edition of the author's "Chemical Russian Self-Taught," but can be used with the previous book for greater advantage. The author devotes one chapter to every case of declension, which is the modern trend in the teaching of Slavic languages (e.g. Teslar, *A New Polish Grammar*); the reviewer is of the opinion that this is of great benefit to people of Anglo-Saxon stock who are notoriously bad in the acquisition of linguistic knowledge. The present participles and the gerunds also are dealt with in separate chapters, a feature truly necessary for a textbook of "scientific" as opposed to "unscientific" Russian. The reading exercises are overwhelming chemical, not quite in agreement with the title of the book. The student, however, may easily overcome this inadequacy by purchasing, for example, L. Light's *Russian Science Readings*, after acquiring the necessary knowledge of language and grammar from Perry's excellent textbook.

—W. Jacobson, M.A.I.C.

Trilinear Chart of Nuclear Species

By William H. Sullivan. John Wiley & Sons. 1949. 9½" x 11". \$2.50.

Five charts which may be assembled into one combination chart show the elements and isotopes cleverly arranged in sequence. Each element has contained, in a representative hexagon, the pertinent nuclear data. The condensation of information into small bulk is a real achievement. For some of the elements, the symbols for modes of production require magnification.

Pocket Encyclopedia of Atomic Energy

By Frank Gaynor. Philosophical Library.
204 pp. 5¾" x 8¼". \$7.50

This is a handy dictionary for reference on the terms used in nuclear chemistry and micro-quantities, with concise descriptions, and biographical notes. It contains summaries on atomic and H-bombs. The definitions seem to be quite accurate.

—Dr. John A. Steffens, F.A.I.C.

Chemical Books Abroad

Rudolph Seiden, F.A.I.C.

Verlag Hans Carl, Nuernberg: *Fruchtsaefte und Fruchtafterzeugnisse*, by Heinrich Maass, 1950, 229 pp., DM 11. Abstracts of 630 European, American, and Australian patents concerning the production of fruit juices, syrups, jellies, soft drinks, etc. The book would be more valuable had its author considered post-war patents; it seems that he stopped compiling the source material in the early 1940's.

• *Biologische Brennerei-Betriebskontrolle*, by Lorand Macher, 1950, 432 pp. with 23 ill. and 67 tables, DM 13.80. The modern micro-biological control methods for laboratories and distilleries are described in this guide for the rational production of alcohol. • *Ueber kuenstliche Suess-stoffe*, by Hermann Fink and Hugo Wildner. 2 parts (1947/49), 56 pp., paper covers, DM 2. A discussion of the sweetening agents, saccharin, dulcin, glucin, "Suosan", "S 23/46", and "Stevoisid". • *Die wissenschaftlichen Grundlagen von Maelzerei und Brauerei*, by Heinrich Luers, 1950, 1006 pp. with 31 ill., DM 44. One of the leading authorities in the theory and practice of beer production discusses in detail the botanical, physical, chemical, biological, and other scientific foundations of malting and brewing. The citation of 1698 literature sources is an indication of the thoroughness of the author.

• *Die Antibiotica*, by Hans Vogel, 1951, 528 pp., DM 38. An excellent survey of the antibiotics and their chemistry and physiology, containing also extracts from 212 foreign (mostly American and English) patents granted in the years 1943-50.

Hoffmann und Campe Verlag, Hamburg:
Louis Pasteur, by Hellmuth Unger, 1950,

266 pp., DM 8.50. A novel which succeeds in doing justice to the famous French chemist Pasteur (1822-95), the father of fermentation chemistry whose genius contributed so greatly to the development of modern bacteriology, hygiene, and medicine. It is a book written for pleasurable reading, yet it may also be called a book which makes learning pleasurable.

Chapman & Hall Ltd., London W.C.2: *Chemical Control of Insects*, by T.F. West, J. Eliot Hardy, and J. H. Ford, 1951, 211 pp. with 44 ill., 15 s. A detailed account of the chemistry and properties of the modern insecticides (such as nicotine, rotenone, pyrethrum,) and of the more recent developments in this field, such as DDT and other chlorinated hydrocarbons, Lethane, Thanite, etc. It gives to the layman and to the chemist who is not specializing in this field a better understanding of the economically important insecticides.

Constable & Co., Ltd., London W. C. 2: *Chemical Engineering Operations*, by Frank Rumford, 1951, 376 pp., 30 s. Here is an excellent introduction into the study of operations and machines used in chemical plants. Of great value are the clear drawings of equipment and the process diagrams. Not only students of chemical engineering, but also chemists and engineers working in factories and laboratories will benefit from reading this treatise.

Hippokrates-Verlag Marquardt & Cie., Stuttgart-S: *Doebereiner, Goethe und die Katalyse*, by Alvin Mittasch, 1951, 62 pp., paper covers, DM 4.50. Even though the term catalysis was coined only in 1835, Goethe and his chemical adviser Doebeleiner had ideas which fit perfectly into this branch of physical chemistry.

Verlag Dr. Dietrich Steinkopff, Darmstadt: *Die organischen Fluorverbindungen in ihrer Bedeutung fuer die Technik*, by Guenther Schiemann, 1951, 221 pp. with 8 ill., paper covers, DM 24. A discussion of the organic F compounds and their importance for research and industry, with a listing of patents (reaching into 1948) and literature.

Georg Thieme Verlag, Stuttgart-O: *Medizinische Toxikologie*, by H. Fuehner, W. Wirth, and G. Hecht, 3rd ed., 251 pp., DM 21.60. A systematic description of the chemical (inorganic and organic) and

natural (plant and animal) poisons, with emphasis on symptoms of poisoning and treatment (antidotes).

Ferdinand Enke Verlag, Stuttgart: *Chemisch-physikalische Vitamin - Bestimmungs-Methoden*, by Fritz Gstriner, 4th ed., 268 pp. with 42 ill. and 27 tables, DM 26.80. Of the many analytical methods for the determination of vitamins, those of practical value for chemical, physiological, and clinical laboratories were selected and described in this useful volume; they deal with vitamins A, B₁, B₂, B₆, C, D, E, K, carotene, niacin (and niacinamide), p-aminobenzoic acid, biotin, and folic acid. This is one of the foreign books which should be made available in a good translation to those who do not read German.

Information

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"Improved Determination of Carbon-by-Combustion." Bulletin No. 319. Burrell Corporation, 1942 Fifth Ave., Pittsburgh, Pennsylvania.

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"Precision Silastic Rubber O-Rings." Data Sheet. Dept. O-R1, Frederick S. Bacon Labs., 192 Pleasant St., Watertown 72, Mass.

"Metal Reactive Primer P-10." Tech. Bulletin 012. Prufcoat Laboratories, Inc., 63 Main St., Cambridge, Mass.

"Spot Cooling Device. Hilsch Vortex Tube." Thermo Instruments Co., 1153 El Camino Real, Belmont, Calif.

"Evaluation of Stabilizers for Vinyl Stocks Containing Chlorowax 40," and "Bulletin No. 4—Evaluation of Inert Fillers in Vinyl Plastics," technical service folders. Request on letterhead. Diamond Alkali Co., 300 Union Commerce Bldg., Cleveland 14, Ohio.

INFORMATION

"Chlordane, 'Velsicol 1068'. Opinion of the Supreme Court of Illinois Settling Ownership of the Formulas, Processes and Products." Velsicol Corp., 330 E. Grand Ave., Chicago, Ill.

"New NBS Standard Hydrocarbon Samples." National Bureau of Standards, Washington 25, D.C.

"Volumes in The Humanizing Science Series." Book list. The Ronald Press Company, 15 E. 26th St., New York 10, N.Y.

"New Impulse Timer. Model RT." Zenith Electric Co. 152 W. Walton St., Chicago 10, Ill.

Journal of Applied Chemistry of the USSR in English translation, annual subscription, \$80.00 *The Journal of General Chemistry of the USSR*, in English translation, annual subscription, \$95.00 Consultants Bureau, 153 West 33rd St., New York 1, N.Y.

"Measurements of Radioactivity." NBS Circular 476. 84 pp. \$35 Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C.

"1950 Index to ASTM Standards", issued as of March, 1951, by the American Society for Testing Materials, 1916 Race St., Philadelphia, 3, Pa.

"Dr. Horn Precision Hand Tachometer." Bulletin 35-65. James G. Biddle Co., 1316 Arch St., Philadelphia 7, Pa.

"Mechanical Foam for Polar Solvent Fires," Bulletin. National Foam System, Inc., West Chester, Pa.

"Tork Clocks Modernize Appliances." Leaflet. Tork Clock Co., Inc., Mount Vernon, N.Y.

"Inexpensive No. 33 Dust Masks." Information. General Scientific Equipment Co., 2700 W. Huntingdon St., Philadelphia 32, Pa.

"Pylene Adhesives." Information. Polymer Industries Inc., 11-08 30th Ave., Astoria, N.Y. or Polymer Southern Inc., P.O. Box 2184, Greenville, S.C.

"Statement by J. Cameron Thomson (on Tax Problems) before U.S. Senate Finance Committee." Distributed by Committee for Economic Development, 444 Madison Ave., New York 22, N.Y.

"Duop Switch." Information. General Control Co., Boston 34, Mass.

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"Dimethoxy Tetraethylene Glycol." Specification sheet. Ansul Chemical Co., Marinette, Wisconsin.

"List Bimet," a bibliography of analytical methods in which filter photometers and spectrophotometers are used. Also "List Titration," containing suggestions for use of line-operated pH meter in various titration applications. Central Scientific Co., 1700 Irving Park Rd., Chicago 13, Ill.

"ABC's of Controlled Materials Plan." Booklet. 10 cents from U.S. Department of Commerce, Washington 25, D.C.

"Method for Testing Rinsability of Synthetic Detergents." Report. Solvay Process Div., Allied Chemical & Dye Corp., 40 Rector St., New York, N.Y.

"Wool Shrinkage Control with Lanaset Resin." Textile Finishing Bulletin No. 128. American Cyanamid Co., Textile Resin Dept., Bound Brook, N.J.

Fifteen Patents Released for Public Use by the U.S. AEC. List dated July 20, 1951, may be obtained from U.S. Atomic Energy Commission, Washington 25, D.C.

New Slide-rule—"Magnesium Anode Cathodic Protection Guide" for protection of pipelines." Request it on letterhead from Federated Metals Division, American Smelting and Refining Co., 120 Broadway, New York 5, N.Y.

Condensates

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Someone suggests that 35 million laws have made no improvement on the Ten Commandments.

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Air pollution, according to the first National Air Pollution Symposium, costs the U.S. about \$1,500,000,000 every year in ruined crops, depreciated property, damage to goods and lowered productivity yet only \$100,000,000 is being spent by industry and government to control this contamination.

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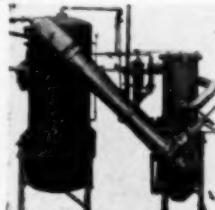
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